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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,610	02/06/2004	Akira Yamanaka	17475US02	7768
23446 7590 03/20/2007 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER BAYARD, EMMANUEL	
			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/20/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/773,610

Applicant(s)

YAMANAKA ET AL.

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-8 and 10 and 11-13 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ojard et al U.S. Patent No 6,850,493 B1.

As per claims 1, 6 and 11 Ojard et al teaches a method for equalization in a communications system, the method comprising: utilizing a block code (see fig.7 element 710) based error correction scheme in a modulation system (see fig.7 element 711) of the communication system (see col.15, lines 12-25); and removing cursor inter-symbol interference within an error code correction word to make code word decision with minimum error power-based criteria in the block code based error correction scheme (see col.14, lines 46-65).

As per claims 2, 7 and 12, Ojard et al teaches wherein removing cursor inter-symbol interference further comprises utilizing a decision feedback equalization filter to remove symbol interferences from previous error correction code words (see fig.7 element 705).

As per claims 3, 8 and 13, Ojard et al teaches wherein removing cursor inter-

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symbol interference further comprises utilizing distortion filtering in the decision feedback equalization filter (see col.14, lines 65-67 and col.15, lines 25-26).

As per claims 5, 10 and 15, Ojard et al teaches wherein removing cursor inter-symbol interference further comprises adding scalar (see fig.7 elements 712 and "+") terms for each error correction code word to a decision metric (see fig.7 element parameters 708, 709 and 710) of a real part of a projection of the filtered symbols to the error correction code words (see col.15, lines 5-29).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojard et al U.S. Patent No 6,850,493 B1 in view of Yen U.S. Pub No 2003/0123,586 A1.

As per claims 4, 9 and 14, Ojard et al teaches all the features of the claimed invention except wherein utilizing distortion filtering further comprises inserting a matrix multiplication-based filter after a feed forward equalizer filter and a feedback filter in the modulation system for symbol interference from the symbols in previous error correction code words.

Yen teaches inserting a matrix multiplication device is the same as the claimed (a matrix multiplication-based filter) after a feed forward equalizer filter and a feedback filter in the modulation system for symbol interference from the symbols in previous error correction code words (see fig.5 element 542 and page 1 [0011] and page 3 [0032-00035]).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Yen into as to make the maximum possible detection and increase the capability of receiving as taught by Yen (see page 4 [0037]).

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ariyavisitakul et al U.S. patent No 6,012,161 teaches a system and method for joint coding.

Lakkis U.S. Pub No 2005/0201456 A1 teaches systems and methods for equalization of received signals.

Kovács et al U.S. patent No 6,067,655 teaches burst error-limiting symbol.

Singvall U.S. Pub No 2001/0009565 A1 teaches a method of detecting a sequence of information symbols.

Mui U.S. Patent No 6,690,739 B1 teaches method for intersymbol interference compensation.

Wei et al U.S. Pub No 2004/0125884 A1 teaches method and apparatus for decoding orthogonal codes.

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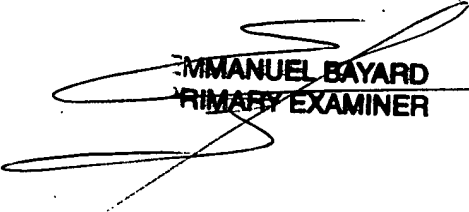
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571 272 2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emmanuel Bayard  
Primary Examiner  
Art Unit 2611

3/16/07



EMMANUEL BAYARD  
PRIMARY EXAMINER